



VCM-DAS-1

PC/104 Data Acquisition & Control Module

100 kHz Analog Input, Analog Output and Digital I/O Module.

Analog Input

- 16 channels
- 16-bit input resolution
- Single ended, high impedance inputs
- Electronic digital calibration
- Up to 100K samples/second
- $\pm 5V$ and $\pm 10V$ input ranges
- On board timer for periodic readings
- Auto retrigger mode
- Auto Channel Increment Mode
- DMA support
- Compatible with industry standard 5B01 series signal conditioners

Analog Output

- 2 channels
- 12-bit resolution
- Electronic digital calibration
- 0-5V and 0-10V output range
- 40 μS update time
- Short circuit proof, 5 ma output current

Digital I/O

- Two 8-bit ports
- ± 24 ma output drive
- Programmable read-only or read/write
- Opto 22 compatible
- EEPROM storage for user data



Description

The VCM-DAS-1 module provides a combination of analog I/O, digital I/O, and non-volatile storage, which makes it ideal for data acquisition and control applications. All of its functions are provided on a single 3.8 x 3.6" PC/104 module.

The analog input section features 16 single-ended input channels with 16-bit resolution, fast 10 μS conversion, and a $\pm 5V$ or $\pm 10V$ input range (153 μV or 305 μV resolution). Throughput of up to 100 kHz may be realized with conversions on one channel and up to 67 kHz when scanning between channels. A variety of automatic channel scanning and triggering modes are available, including DMA support.

The analog output section includes two 12-bit analog output channels. Each may be jumpered independently for 0-5V or 0-10V output.

Both sections feature simplified calibration using programmable digital pots. In addition, the on-board EEPROM which is used to store the calibration values has free space available for user data. The digital pots power up and reset to mid-scale, and can be set to any calibration value during system initialization.





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The digital I/O section provides 16 digital I/O lines which feature high current TTL drivers. The two 8-bit ports are byte configurable as inputs only or outputs with readback. The digital interface is plug compatible with Opto 22 type modular I/O racks.

Software Support

Complete C Language source code drivers are included. Also includes DOS-based diagnostic and calibration routines.

Ordering Information

VCM-DAS-1 100 kHz Analog I/O Module
VL-HDW-100 Standoff Pkg. English Thread
VL-HDW-101 Standoff Pkg. Metric Thread
VL-CBL-2602 1.5" 26-pin/26-pin socket

Specifications

Specifications are typical at 25°C with 5.0V and ±12.0V supplies unless otherwise noted.

Board Size:

3.8" x 3.6" (PC/104 standard)
0.6" component height

Storage Temperature:

-40°C to 85°C

Free Air Operating Temperature:

0°C to +60°C

Power Requirements:

+5V @ 510 ma typical
±12V @ ±20 ma typical

Analog Input:

Channels: 16 channels
Resolution: 16 bits, no missing codes
Accuracy: ±0.003% (±3 LSBs)
Input Mode: Single ended

Range: ±5V or ±10V (jumper selectable, all channels the same)

Conversion Time: 10 µS

Settling Time: 5 µS (applies only when switching channels)

Protection: ±35V overvoltage protection

Impedance: >10¹⁰Ω, 20pF

Retrigger Timer: Programmable 20 µS, 50 µS, 100 µS, 250 µS, 500 µS, 1 mS

Interrupt Channel: IRQ 10, 11, or 12

DMA Channel: DMA 5, 6, or 7

Analog Output:

Channels: 2 channels

Range: 0 to 5V or 0 to 10V (jumper selectable, each channel independent)

Resolution: 12 bits

Accuracy: ±1.5 LSB

Update/Settling Time: 40 µS

Output Drive: 5 ma, 200 pF (each channel)

Access: Bitwise serial

Digital I/O:

Channels: 16 (non-inverting)

Input Threshold: TTL compatible

Output Drive (H): -24 ma @ 2.4V

Output Drive (L): +24 ma @ 0.55V

Signal Direction: Byte programmable as input or output with readback

Short Protection: Short circuit to ground, indefinite duration

I/O Interface: Occupies 16 ports on any 16-bit boundary

EEPROM:

Organization: Sixty-four 16-bit words

Allocation: Two words used for digital pots, 62 words available for general purpose storage

Access: Bitwise serial

External Connectors:

Analog In/Out: 26-pin .1" header

Opto 22: 34-pin .1" header

Compatibility:

PC/104: Full compliance, 16-bit data bus

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